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IN THE CLAIMS:

Please amend the claims as follows:

1. (Currently amended): A method comprising:  
contacting a first component and a second component with one of a nanoporous ~~structure~~ membrane comprising pores and a nanoporous bead comprising pores, wherein the first and second components are contacted within the pores; and producing a product from a reaction of the first component with the second component.
2. (Original): The method of claim 1 further including incubating the first component with the second component.
3. (Currently amended): The method of claim 2, wherein incubating includes waiting for a first period of time which is less than a period of time allotted for reacting the first component with the second component using a non-nanoporous structure.
4. (Original): The method of claim 1 further comprising mixing the first component with the second component.
5. (Original): The method of claim 1 further comprising immobilizing the first component to the nanoporous structure.
6. (Currently amended): The method of claim 1, wherein contacting the first component and the second component with the nanoporous structure includes increasing an effective concentration.
7. (Original): The method of claim 1 further comprising adjusting a kinetic characteristic.
8. (Currently amended): The method of claim 7, wherein adjusting a kinetic characteristic includes adjusting a temperature, adjusting a concentration, adjusting a time period, adjusting a pH, adjusting a volume, adjusting a pressure, adjusting a diffusion rate, adjusting a material characteristic, adjusting an atmospheric humidity or adjusting a light exposure.
9. (Canceled)

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- 10 (Canceled)
11. (Currently amended): The method of claim 1, wherein contacting the first component with the nanoporous structure includes contacting a catalyst with the nanoporous structure.
12. (Currently amended): The method of claim 11, wherein contacting the catalyst includes contacting an enzyme, contacting a platinum powder, or contacting a metal complex.
13. (Currently amended): The method of claim 12, wherein contacting the enzyme includes contacting a restriction enzyme, contacting a ligase, contacting a polymerase, contacting a kinase, contacting an amylase, contacting an esterase, contacting a dehydrogenase, contacting a transferase, contacting a synthetase, contacting a synthase, contacting a polymerase, contacting a carboxylase, contacting a reductase, contacting a phosphorylase, contacting a phosphotransferase, contacting an aminotransferase, contacting an oxidase, contacting an isomerase, contacting a deamidase, contacting a fumarase, contacting an anhydrase, contacting a dismutase, contacting a peptidase, contacting an aldolase, contacting an enolase, contacting a luciferase, contacting a urease, contacting a galactosidase, contacting a transcarbamylase, contacting a glucosidase, contacting a glucanase contacting an endonuclease or contacting an exonuclease.
14. (Canceled)
15. (Original): The method of claim 1 further comprising contacting a third component with the nanoporous structure.
16. (Currently amended): The method of claim 1, wherein contacting a first component includes contacting an antibody, contacting an antigen, contacting a receptor, contacting a substrate, contacting a protein, contacting an amino acid, contacting a nucleic acid, contacting a nucleotide, contacting a lipid, contacting a fatty acid, contacting a carbohydrate, contacting a hydrocarbon, contacting a cofactor, contacting a redox reagent, contacting an acid,

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contacting a base, contacting a cellular fraction, contacting a subcellular fraction, contacting a virus sample, contacting a fragment of a virus, contacting a buffer, contacting water or contacting an organic solvent.

17. (Currently amended): The method of claim 1, wherein producing the product includes producing a modified nucleic acid, a nucleotide, an amplified nucleic acid fragment/sequence, a modified polypeptide, an amino acid, a cleavage product, an antibody/antigen complex, a ligand/receptor complex, an immunoassay product, a modified chemical, a sequencing fragment, a primary metabolite or a secondary metabolite.
18. (Currently amended): The method of claim 17, wherein producing the cleavage product includes producing a nucleic acid fragment, a nucleotide, a polypeptide, an amino acid, a fatty acid, a carbohydrate, a polysaccharide, a simple sugar, a primary metabolite or a secondary metabolite.
19. (Currently amended): The method of claim 1, wherein producing the product includes producing an amplified nucleic acid fragment and wherein incubating includes applying a series of temperature changes suitable for sequence amplification.

20-33. (Canceled)

Please add the following new Claims 34 and 35:

34. (New): The method of claim 1, wherein the pores have a diameter of less than 1  $\mu\text{m}$ .
35. (New): The method of claim 34, wherein the pores have a diameter ranging from about 1 nm to about 100 nm.